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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/886,659	06/21/2001	David A. Brown	2037.2018-000	4746

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EXAMINER

SHINGLES, KRISTIE D

ART UNIT PAPER NUMBER

2141

DATE MAILED: 08/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/886,659	Applicant(s) BROWN, DAVID A.	
	Examiner Kristie Shingles	Art Unit 2141	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Per Applicant's Request for Continued Examination:
No claims have been amended.

Claims 1-25 are pending.

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/17/2006 has been entered.

Response to Arguments

2. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new grounds of rejection.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference

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claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. **Claims 1-23** are rejected on the ground of nonstatutory double patenting over claims 1-25 of US Patent No. 6,880,064 since the claims, if allowed, would improperly extend the "right to exclude" already granted in the patent.

As stated in the previous Non-Final Office Action mailed 11/23/2004, the subject matter claimed in the instant application is fully disclosed in the referenced copending application 09/886,650 (now US Patent No. 6,880,064) and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter, as follows:

- a lookup table comprising a plurality of mappers indexed by portions of a next (successive) portion of a search key to output a route index for the search key or partial indexes to subsequent mappers (claim 23 of instant application vs. claims 1, 9, 7 and 25 of US 6,880,064);
- wherein the search key length is variable (claim 3 of instant application vs. claim 3 of US 6,880,064);
- the search key includes 32-bit IPv4 addresses and 128-bit IPv6 addresses (claims 4 and 6 of instant application vs. claims 5 and 7 of US 6,880,064);
- the search key is stored in a single location (claim 2 of instant application vs. claim 2 of US 6,880,064);

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- the partial index is a subtree index (claim 7 of instant application vs. claim 8 of US 6,880,064);
- the route index corresponding to the search key is found after a first search of the plurality of mappers (claim 5 of instant application vs. claim 6 of US 6,880,064).

Furthermore, there is no apparent reason why Applicant was prevented from presenting claims corresponding to those of the instant application during prosecution of the application which matured into a patent. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 1-3, 8-10, 15-17 and 22-25** are rejected under 35 U.S.C. 103(a) as being unpatentable over *Wilkinson III et al* (US 6,014,659) in view of *Michels et al* (US 6,161,144).

a. **Per claim 23**, *Wilkinson III et al* teach an apparatus for providing a route index corresponding to a search key comprising:

- a forwarding engine which receives the search key and provides a portion of the search key as a mapper key (col.7 line 48-col.8 line 25; forwarding engine receives search key and provides fragments of the search key as mapper key for the search unit); and
- a lookup table coupled to the forwarding engine, which receives the mapper key from the forwarding engine, the lookup table comprising (col.17 line 59-col.18 line 8, col.19 lines 17-21):

- a plurality of mappers which are indexed by successive portions of a search key and partial indexes from prior mappers to output the route index to the forwarding engine for the search key or partial indexes to subsequent mappers (col.5 line 33-col.6 line 29, col.8 lines 40-47, col.27 lines 44-57); and

Yet *Wilkinson III et al* teach multiple successive portions of the search key (col.8 line 40-col.9 line 26), yet fail to explicitly teach a partial index feedback loop by which a mapper is indexed in multiple passes with multiple successive portions of the search key. However *Michels et al* teach multiple iterations by the search engines of a search tree using multiple successive portions of the search key as indices (col.2 line 58-col.3 line 25, col.7 line 66-col.8 line 65, col.9 line 2-col.10 line 20).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of *Wilkinson III et al* and *Michels et al* for the purpose of implementing a partial feedback loop which allows for the mappers to make multiple iterations using successive portions of the search key in order to perform a fully exhaustive high-speed search for the longest matching entry.

b. **Claims 1, 8, 15 and 22** contain limitations that are substantially equivalent to the limitations of claim 23 and are therefore rejected under the same basis.

c. **Per claim 2**, *Wilkinson III et al* and *Michels et al* teach the lookup table as claimed in Claim 1, *Michels et al* further teach wherein the route index corresponding to the search key is stored in a single location in one of the plurality of mappers (col.11 lines 23-48).

d. **Claims 9 and 16** are substantially similar to claim 2 and are therefore rejected under the same basis.

e. **Per claim 3**, *Wilkinson III et al* and *Michels et al* teach the lookup table as claimed in Claim 1, *Wilkinson III et al* further teach wherein the length of the search key is variable (col.28 lines 5-13).

f. **Claims 10 and 17** are substantially similar to claim 3 and are therefore rejected under the same basis.

g. **Per claim 24**, *Wilkinson III et al* and *Michels et al* teach the lookup table as claimed in claim 1, *Michels et al* wherein the mapper includes a subtree memory and a subtree mapper, the subtree mapper storing the partial indexes (col. lines 1-65, col.12 lines 1-63; *Wilkinson III et al*: col.27 line 44-col.28 line 13).

h. **Per claim 25**, *Wilkinson III et al* and *Michels et al* teach the lookup table as claimed in claim 1, *Michels et al* further teach wherein the partial index includes a pointer to a subtree entry stored in another mapper (col.11 lines 23-48).

7. **Claims 4-7, 11-14 and 18-21** are rejected under 35 U.S.C. 103(a) as being unpatentable over *Wilkinson III et al* (US 6,014,659) in view of *Michels et al* (US 6,161,144) in further view of *Cao et al* (US 6,826,561).

a. **Per claim 4**, *Wilkinson III et al* and *Michels et al* as applied above yet fail to explicitly teach the lookup table as claimed in Claim 3 wherein the search key includes a 32-bit IPv4 address. However *Cao et al* teach wherein the search key length includes a 32-bit IPv4 address (col.3 lines 38-50). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of *Wilkinson III et al* and *Michels et al* with *Cao et al* for the purpose of varying the length of the search key to include 32-bit IPv4 addresses, so that the searching functions are scaleable and applicable with the current and “next-generation” IP addresses.

b. **Claims 11 and 18** are substantially similar to claim 4 and are therefore rejected under the same basis.

c. **Per claim 5**, *Wilkinson III et al* and *Michels et al* with *Cao et al* teach the lookup table as claimed in Claim 4, *Michels et al* further teach wherein the route index corresponding to the search key is found after a first search of the plurality of mappers (col.8 lines 37-65).

d. **Claims 12 and 19** are substantially similar to claim 5 and are therefore rejected under the same basis.

e. **Per claim 6**, *Wilkinson III et al* and *Michels et al* with *Cao et al* teach the lookup table as claimed in Claim 3, *Cao et al* further teach wherein the search key includes a 128-bit IPv6 address (col.3 lines 45-50, col.7 lines 10-13).

f. **Claims 13 and 20** are substantially similar to claim 6 and are therefore rejected under the same basis.

g. **Per claim 7**, *Wilkinson III et al* and *Michels et al* with *Cao et al* teach the lookup table as claimed in Claim 1, *Cao et al* further teach wherein the partial index is a subtree index (col.3 lines 23-31, col.4 line 54-col.5 line 30; *Michels et al*: Figures 4B and 9, col.7 line 35-col.9 line 21).

h. **Claims 14 and 21** are substantially similar to claim 7 and are therefore rejected under the same basis.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Mullan et al (5,459,717), Nickel (5,202,986), Michels et al (7,023,807), Brown (2005/0175005).

9. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Kristie Shingles whose telephone number is 571-272-3888. The examiner can normally be reached on Monday-Friday 8:30-6:00pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rupal Dharia can be reached on 571-272-3880. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kristie Shingles
Examiner
Art Unit 2141

kds


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